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## <NOTE>

# Savanna Chimpanzees (*Pan troglodytes verus*) Prey on Patas Monkeys (*Erythrocebus patas*) at Fongoli, Senegal

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## INTRODUCTION

Chimpanzees across Africa include some meat in their diet<sup>1</sup>. In most communities where chimpanzees have been studied over the long term, primate prey is apparently preferred over other animal prey, with red colobus monkeys (*Piliocolobus badius*) comprising the most common monkey species eaten<sup>2</sup>. At Fongoli, Senegal, it is likely that chimpanzees have never had access to red colobus monkeys at this hot, dry and open site, although the range of red colobus monkeys (*P.b. temminckii*) in Senegal and adjacent countries in West Africa has diminished<sup>3</sup>. Fongoli chimpanzees are currently not sympatric with red colobus, although they eat vertebrate prey of various types, including a number of primate species.

We previously reported two of the three primate species as preyed upon by chimpanzees at Fongoli (*Chlorocebus aethiops*<sup>4</sup>, *Galago senegalensis*<sup>5</sup>). Fongoli chimpanzees use modified sticks as jabbing tools to obtain bushbabies. We have since observed Fongoli chimpanzees hunting banded mongoose (*Mungos mungo*)<sup>5</sup> and baboons (*Papio hamadryas papio*) and feeding on bushbuck (*Tragelaphus scriptus*) and as well (Pruetz, unpublished data). Here, we report on the inclusion of a fourth primate species eaten by chimpanzees at Fongoli, the patas monkey (*Erythrocebus patas*). This is the first recorded incident of predation on patas monkeys by chimpanzees. Fongoli is the only site where habituated chimpanzees are sympatric with this monkey species.

## STUDY SITE

Chimpanzees in Senegal inhabit the area known as the Mandingue Plateau, which defines the northern and geographical limits of chimpanzees' range in West Africa. This region of southeastern Senegal is Sudanian savanna and Guinean woodland. The Fongoli site (12°40' N, 12°13' W) is at the junction of the Sudanian and Sudano-Guinean vegetation belts, which can be envisioned as a savanna-woodland mosaic<sup>1</sup>. Rainfall averages less than 800 mm annually (Pruetz, unpublished data). In southeastern Senegal, the rainy season is from June through September. Other animal species at the site include those associated with open environments, such as patas monkeys and oribi (*Oribi oribi*), as well as species that typically use closed habitats more extensively, such as green monkeys and bushbucks. Humans that live in the area include the Bedik, Bassari, Diahanke and Malinke.

The Fongoli chimpanzee community has been studied since April 2001, and systematic behavioral data collection began after habituation of adult males in 2005. The community size ranges between 31-34 individuals annually, with approximately 10-11 adult males, 7-8 adult females and varying numbers of immature chimpanzees comprising the community, based on records collected since all individuals were identified in January 2006 (Pruetz, unpublished data). The Fongoli chimpanzee home range is estimated, minimally, to be 63 km<sup>2</sup> and is predominantly open woodland and grassland, with small patches of gallery forest and seasonally cultivated fields<sup>1</sup>.

## OBSERVATIONS

Few encounters have thus far been observed between patas monkeys and chimpanzees at Fongoli in the four years following habituation, likely because both chimpanzees and humans are predators of patas in this area (Pruetz, personal observation). In the first encounter recorded between patas monkeys and chimpanzees, during the 2008 dry season, the latter gave wraa calls at two male patas (one adult, one subadult) that had been drinking at the permanent water source near a resting chimpanzee party. Both patas monkeys fled

quickly and one adolescent male chimpanzee gave chase, although he appeared not to run at full speed. He did not gain on the monkeys at any point, but the chase ended out of sight of the observer. The monkeys did not vocalize in any way during this encounter.

In the second encounter observed between chimpanzees and patas monkeys, in July 2008, two older, adult male chimpanzees attempted to hunt at least two patas monkeys. The older and lowest ranking of the two males was successful in capturing a one-year old (juvenile) monkey. The behavior of these two, older adult male chimpanzees suggested a coordinated attempt at patas monkey predation. During foraging-related travel, one male stopped immediately after the first, and both males remained silent and attentive until the same moment when they raced to the trees in the woodland habitat in which the patas monkeys were ultimately found. While this may be explained as coincidental, the silent communication between the adult males, including the exchange of gaze, indicated that such behavior was not characteristic of one or the other's selfish motivation or desire to reach the monkeys first. Observers waited approximately 10 seconds before following the subjects so as to refrain from alerting the monkeys prematurely, so were able to only observe the second attempt on a second juvenile patas monkey (one or two years of age). The older male had already begun eating the juvenile patas he caught while outside of observers' view. The other adult male was observed to jump into the tree containing the second juvenile patas monkey and climb quickly toward it. The patas monkey almost immediately leapt from the tree (at a height of less than 10 meters) to the ground and began running. The adult male chimpanzee immediately stopped chasing the monkey once it landed on the ground and returned to the other chimpanzee's kill. The monkey was shared extensively between the two adult males and was consumed entirely save for its bones and tail. At no time did patas monkeys elicit alarm calls or other vocalizations before or after the predation event.

In the third encounter between chimpanzees and patas monkeys, in July 2009, observers followed an adult male and an older adolescent male. The two chimpanzees were observed to travel cautiously, apparently listening to sounds made by patas monkeys. Both chimpanzees gave chase to what turned out to be a patas monkey, but they were lost from view during the hunt and capture. Approximately eight minutes later, the adolescent male was observed feeding on a young patas monkey, not sharing with the adult male until 197 minutes later.

## DISCUSSION

Fongoli chimpanzees have now been observed to feed on each of the non-human primates sympatric with them in their hot, dry and open environment. Patas monkeys are known to be the fastest terrestrial primate<sup>6</sup>. Although the speed of these monkeys was long thought to be a trait selected for anti-predation in this species, a recent study in Laikipia, Kenya recorded a variety of anti-predator strategies in this species, and fleeing from predators accounted for less than half of all responses<sup>7</sup>. As seen in the observed predation attempt by an older male chimpanzee on a young patas monkey, escape into the trees did not deter pursuit but escape via running on the ground appeared to deter pursuit. Notably, monkeys did not elicit alarm calls in any observed encounters. Chimpanzees' ability to pursue their prey in trees precludes the ability of monkeys to escape safely into trees as with other terrestrial predators, so that patas monkeys in the Fongoli region appear to use crypticity as an initial anti-predation strategy when faced with a chimpanzee predator.

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